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REMARKS

Reconsideration and allowance of this application, as amended, is respectfully requested.

This Amendment is in response to the Office Action dated July 14, 2006. By the present Amendment, the claims have been amended to clarify the invention. This includes the addition of new claims defining further features of the present invention.

Briefly, by the present Amendment, independent claim 75 has been amended to clarify that the magnetic field forming means forms a magnetic field designed to generate increased plasma density at a portion of the outer periphery of the sample which is greater than the plasma density at the center of the sample. In addition, as will be discussed in more detail below, independent claim 75, and each of the new independent claims 81, 87 and 93 define more specific features of the magnetic field forming means to clarify the distinctions over the cited prior art. Finally, independent claim 75, and each of the independent claims 81, 87 and 93, have been amended to define "means for etching a fine pattern on said sample" to emphasize the functional distinctions of the invention over the cited prior art.

Turning first to independent claim 75, by the present amendment, the magnetic field forming means has been further amended to define that the means for forming a magnetic field to generate increased plasma density at a portion with an outer periphery of the sample, accomplishes this:

> "By continuously rotating the magnetic field to generate the increased plasma density at the portion within the outer periphery of the sample."

This corresponds to the examples given in the Specification with regard to Figs. 15 through 22, for example. Referring to the Specification of the parent USP 6,197,151,

(for purposes of simplicity), the embodiment 15 describes rotating a core 201 (see column 24, line 43) in order to achieve increased plasma density in the peripheral regions of a sample. The results of this are shown in Fig. 17, for example. Similarly, the embodiments shown in Figs. 21 and 22, and discussed in column 25, for example, also describe the continuous rotation of a magnetic field to achieve the increased plasma density at the periphery of the sample.

It is respectfully submitted that neither of the references to Heinrich (USP 5,527,394) nor Qian (USP 5,534,108) teach or suggest any such continuous rotation of the magnetic field to achieve the increased plasma density. With regard to the Heinrich patent, it appears that rather than varying the plasma density the reference deals with varying plasma volume. In any event, there is no suggestion of continuous rotation of the magnetic field in order to achieve an increased plasma density at an outer periphery of the sample.

With regard to the Qian patent, this patent depends on inspection and interpretation by an operator to decide individual control of the magnets 116, 118 , 120 and 122 to adjust the plasma density based upon the results of an inspection. Thus, whether or not the plasma density is increased or decreased at any given corner of the chamber depends entirely on the results of individual inspections. Clearly, there is no continuous rotation of a magnetic field to increase density at the periphery of a sample, as required by amended claim 75. Instead, a periodic sampling is made of the plasma density and adjustments are made accordingly. Although this might occasionally result in the plasma density being increased at the outer periphery, there will obviously be numerous other occasions when plasma density is increased at some other portion within the chamber. In any event, clearly

there is no continuous rotation of a magnetic field to generate the increased plasma density at the portion within the outer periphery of the sample as required by the amended claim 75. Therefore, for the reasons discussed above, reconsideration and allowance of the amended independent claim 75 over both the references to Heinrich and Qian is respectfully requested.

Reconsideration and allowance of the newly added independent claims 81, 87 and 93, and their respective dependent claims, is also respectfully requested. In each case, these claims correspond to the original claim 75 (from the last Amendment) plus additional language defining the specific embodiments such as shown in Figure 17, Figures 21 and 22, and Figures 28 and 29. Thus, the new independent claim 81, defines the embodiment shown in Figures 21 and 22, in which a rotating magnetic field is formed by successively switching the direction of magnetic fields in each of pairs of coils (see column 25, lines 31 et seq. of the parent U.S. Patent 6,197,151). Independent claim 87 defines the embodiment shown in Figures 28 and 29, and discussed, for example, in column 6, line 45, et seq. of the parent U.S. Patent 6.197,151. As noted in column 26, line 52 et seq.:

> "The direction of the magnetic flux B formed by the coil 230 and the direction of the magnetic flux B' formed by the coil 240, cancel each other in the central portion of the processing chamber, and superpose each other in the peripheral portion of the outer portion of the peripheral portion of the processing chamber, as shown by the arrows."

Finally, independent claim 93, defines the embodiment shown in Figures 15 and 17, for example, in which an eccentric core 201 is continuously rotated to provide the increased plasma density at the peripheral portion of the sample (e.g., see column 24, line 43, et seq. of parent U.S. Patent 6,197,151).

It is respectfully submitted that clearly neither of the cited references to Heinrich or Qian, cited in the Office Action with regard to meeting the previous limitation of the magnetic field forming means, teach or suggest these specific claimed embodiments for increasing the plasma density at the outer periphery of the sample, whether considered alone or in combination with the other cited prior art. As noted above, although Qian might, during its sampling operation, increase plasma density in some instances near the outer periphery of the sample, there was absolutely in Qian to suggest any of the features set forth in the independent claims 81, 87 and 93, as discussed above. Similarly, the reference to Heinrich makes no suggestion whatsoever of these claimed structures. More specifically, there is nothing in either reference suggesting the successive switching of the direction of magnetic field in each of pairs of coils to rotate the magnetic field, as defined in claim 81, or the cancellation and superposed arrangement defined in claim 87, or the rotation of the eccentric cord defined in claim 93. Therefore, particular consideration and allowance of these new independent claims 81, 87 and 93, and their respective dependent claims, is respectfully requested.

Reconsideration and removal of the 35 USC 112, first paragraph, rejection with regard to dependent claim 80 is also respectfully requested. (which would also apply to dependent claims 86, 92 and 98). With regard to this, Applicants again respectfully submit that one of ordinary skill in the art would readily understand that the term "fine pattern" is clearly defined by the discussion found in the background of the invention, such that one of ordinary skill in the art reading the present specification would clearly understand that the subsequent reference to manufacturing a "fine pattern", which the background of the invention defined as

being of 0.2μm or smaller, would mean that the detailed description itself referred to this same fine pattern. This is particularly the case since the discussion in the prior art explains the difficulty of manufacturing such a fine pattern of 0.2μm or smaller, such that one of the purposes of the present invention is to be able to achieve manufacturing a fine pattern of this size. Otherwise, why would the background of the invention discuss the difficulties in manufacturing a fine pattern of this size, if the subsequent discussion of "fine pattern" in the detailed description did not refer to this same size? In other words, what the present specification has done is to effectively use the discussion in the background of the invention as a definition, such that continued reference to the specific size in the detailed description would not be necessary for one of ordinary skill in the art to understand that the term "fine pattern" in the detailed description refers to the same size "fine pattern" referred to in the background of the invention. Therefore, reconsideration and removal of the 35 USC 112, first paragraph, rejection is respectfully requested.

With regard to the 35 USC 112, first paragraph, rejection of claim 80 (and the corresponding new dependent claims), Applicants will authorize cancellation of these claims (without prejudice) if the Examiner decides that other claims in the application are in condition for allowance. Accordingly, it is respectfully requested that the Examiner contact the undersigned attorney to discuss this if it is determined that any of the other claims in the application are now in condition for allowance. Applicants and the undersigned attorney greatly appreciate the Examiner's courtesy in this regard.

If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the

Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Docket No. 520.35237VX3), and please credit any excess fees to such Deposit Account.

Respectfully submitted,
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